Part B Report

Name: Travis Xie (replace with your own name and delete this instruction!)

Assignment 6: Perceptron Classification and Training

CSE 415 Introduction to Artificial Intelligence, Winter 2021, University of Washington

Please answer each question using text in Blue, so your answers stand out from the questions.

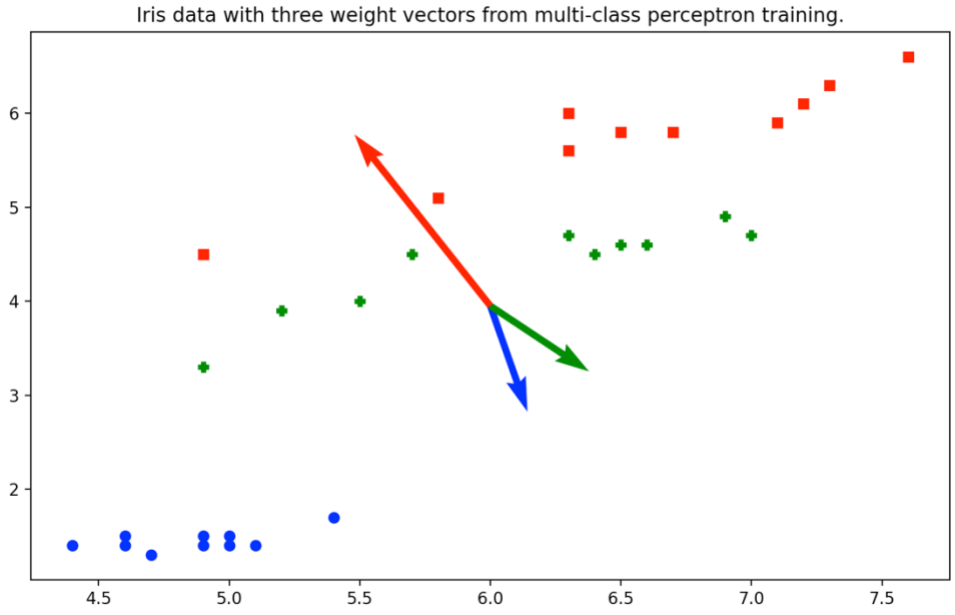
QB1. How many epochs were required to train your perceptron on the 3-class Iris data having 4 features (the given training file, with 30 examples) ?

85 epochs

QB2. How many of the test data examples (out of 120) were mis-classified? Determine the percentage error rate and write that here.

Out of 120, 14 are mis-classified. The error rate is 11.67%.

QB3. Capture the plot that is produced by the program showing the training data and the weight vectors when projected onto the 2-D subspace spanned by sepal length and petal length (which is the starter-code default in run_3_class_4_feature_iris_data.py. Paste it here, reduced to fit in the remaining space on this page.



QB4. In the file run_3_class_4_feature_iris_data.py, adjust the commenting near lines 23-25 so you can see the data in the plot projects to features 2 and 3 (petal length and petal width). Describe the how the data seems to be distributed in this view. Describe how the weight vectors seem to be pointing. Finally, describe the relationship between the weight vectors and the distribution of the data.

The red points are distributed at the upper right corner of the graph, the green points are in the center of the graph, very close to the red points, and the blue points are at the lower left corner of the graph, far away from the other clusters. Weight vectors seem to point to their corresponding clusters, red point to red, blue pointing to blue, and green pointing to the green. The relationship is that the weight vectors seem to point towards the distribution of the corresponding data.